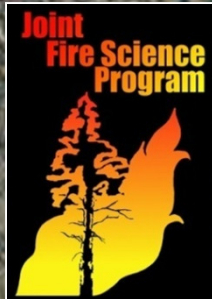
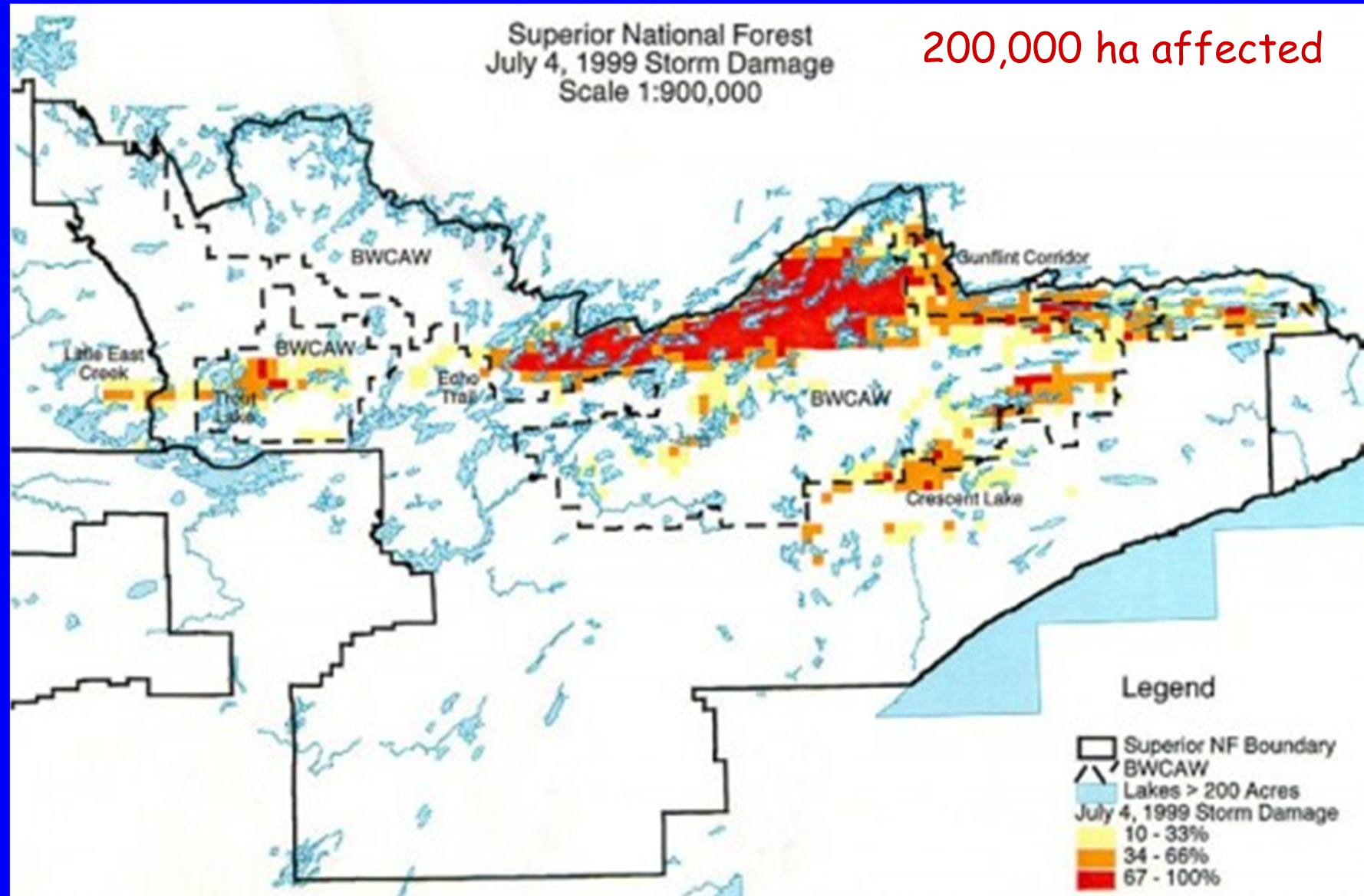


Singular and interactive effects of blowdown, salvage logging, and wildfire near the Gunflint Corridor, SNF



Brian Palik and Shawn Fraver (US Forest Service)
Tony D'Amato (University of Minnesota)

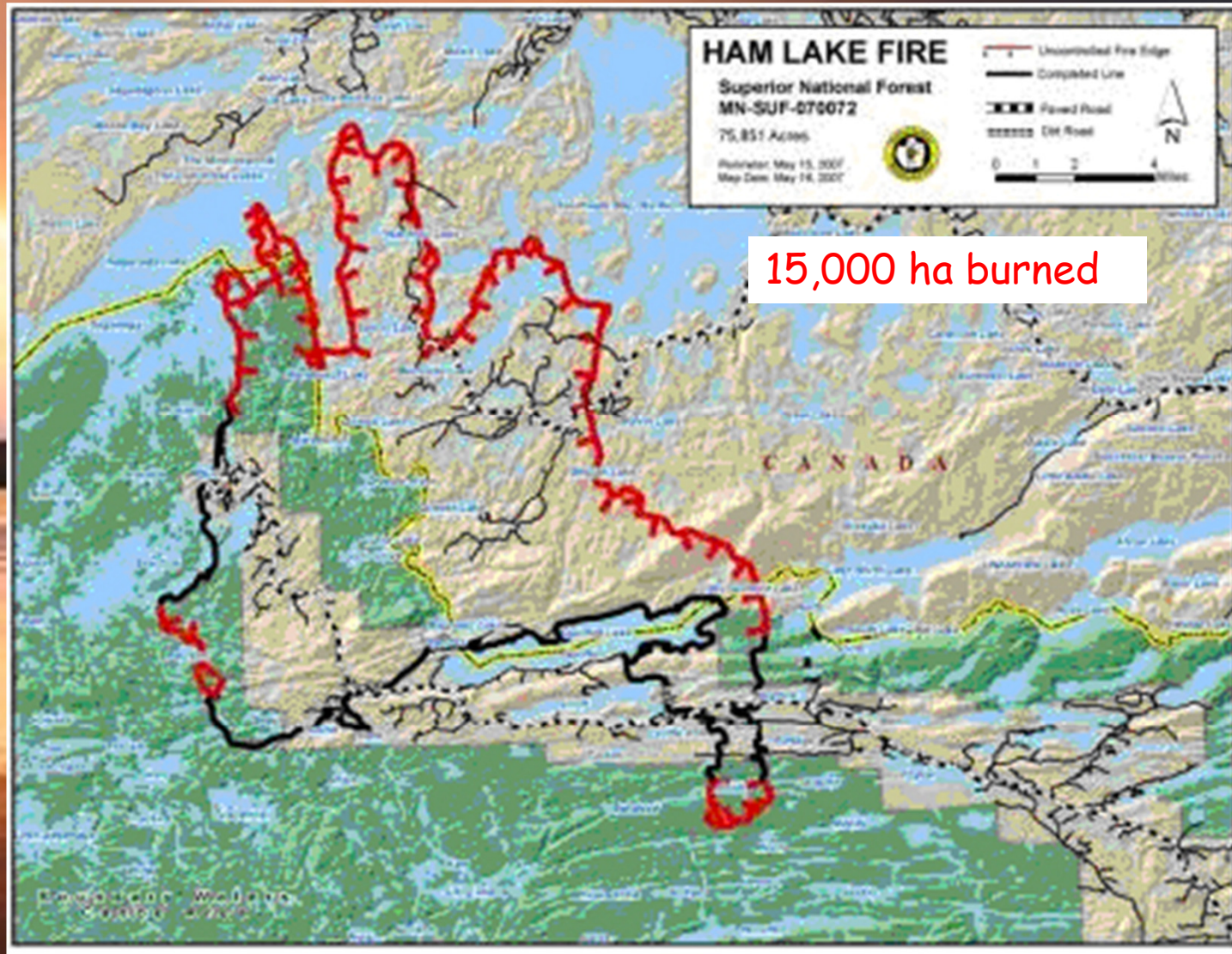
Blowdown (July 4th 1999)



Salvage Logging (1999-02)



Ham Lake Fire (May 2007)



15,000 ha burned

Photo: Sue Prom

"Treatment" Combinations

6 study sites per treatment; All jack pine dominated

Treatment	Blowdown 1999	Salvage Logging	Wildfire 2007
BSF	YES	YES	YES
BF	YES	NO	YES
F	NO	NO	YES
B	YES	NO	NO
CONTROL	NO	NO	NO

Blowdown



Fire



Blowdown + Fire



Research Questions

- How did these disturbance combinations influence
 - Tree regeneration?
 - Current fuel loads?
- Do tradeoffs exist between fuel reduction and 'legacy' retention?

BREVIA

Post-Wildfire Logging Hinders Reg

D. C. Do
J. B. Kau

PO

ECOLOGY

Salvage Harvesting Poli

Reburn severity in vegetation in a large

Jonathan R. Thompson^{*†}, Thomas A. Spies

^{*}Department of Forest Science, Oregon State University
of Agr

Edited

Debat
fire s
used

RESEARCH COMMUNIC

A field exper of post-fire s regeneration

David F Greene¹, Sylvie Gauthier

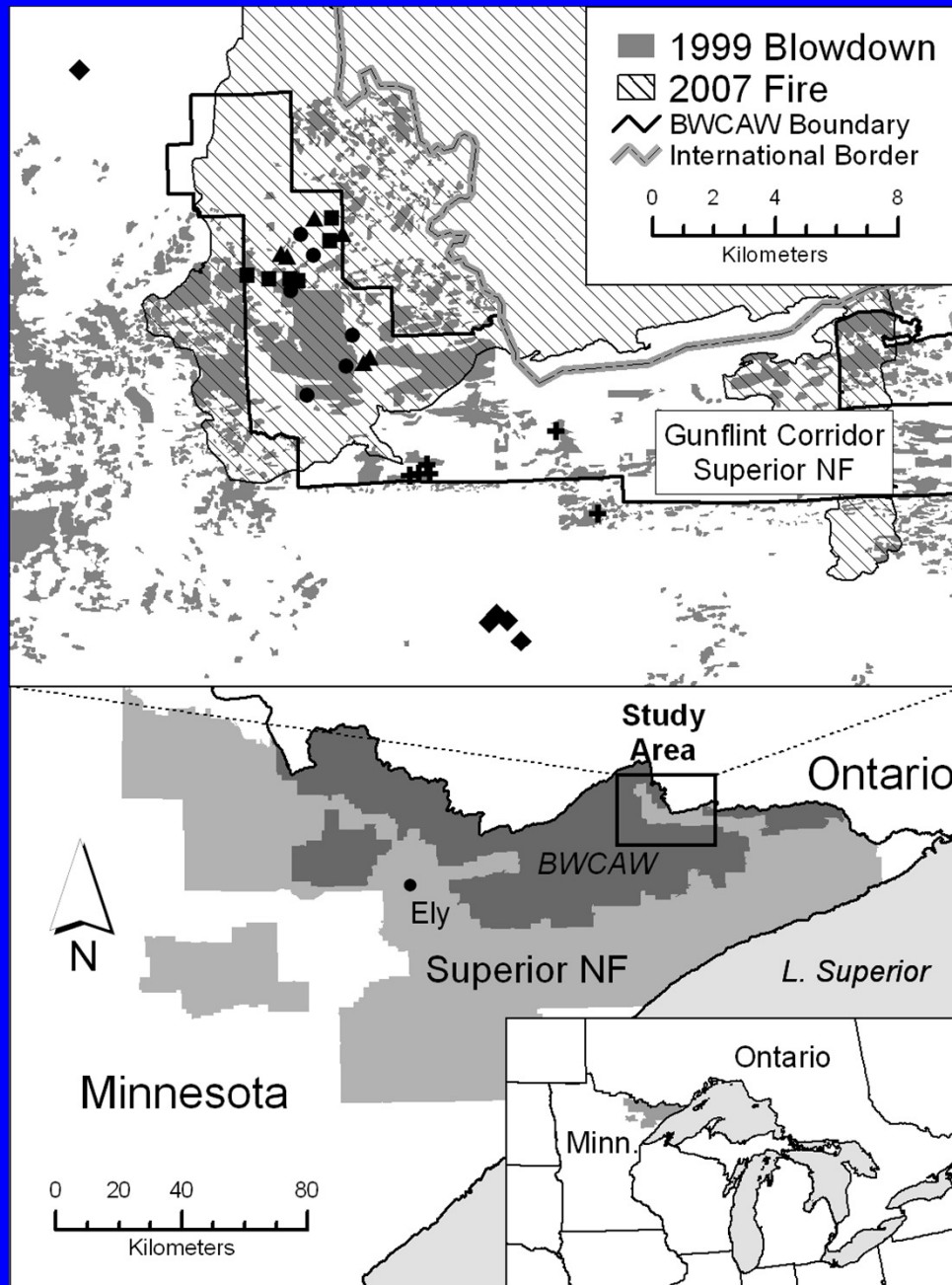
DAVID B. LINDENMAYER,
PHILIP J. BURTON, AND JERRY F. FRANKLIN



SALVAGE LOGGING AND ITS ECOLOGICAL CONSEQUENCES

Why Salvage? Fire risk, Fire Spread, Fire Intensity





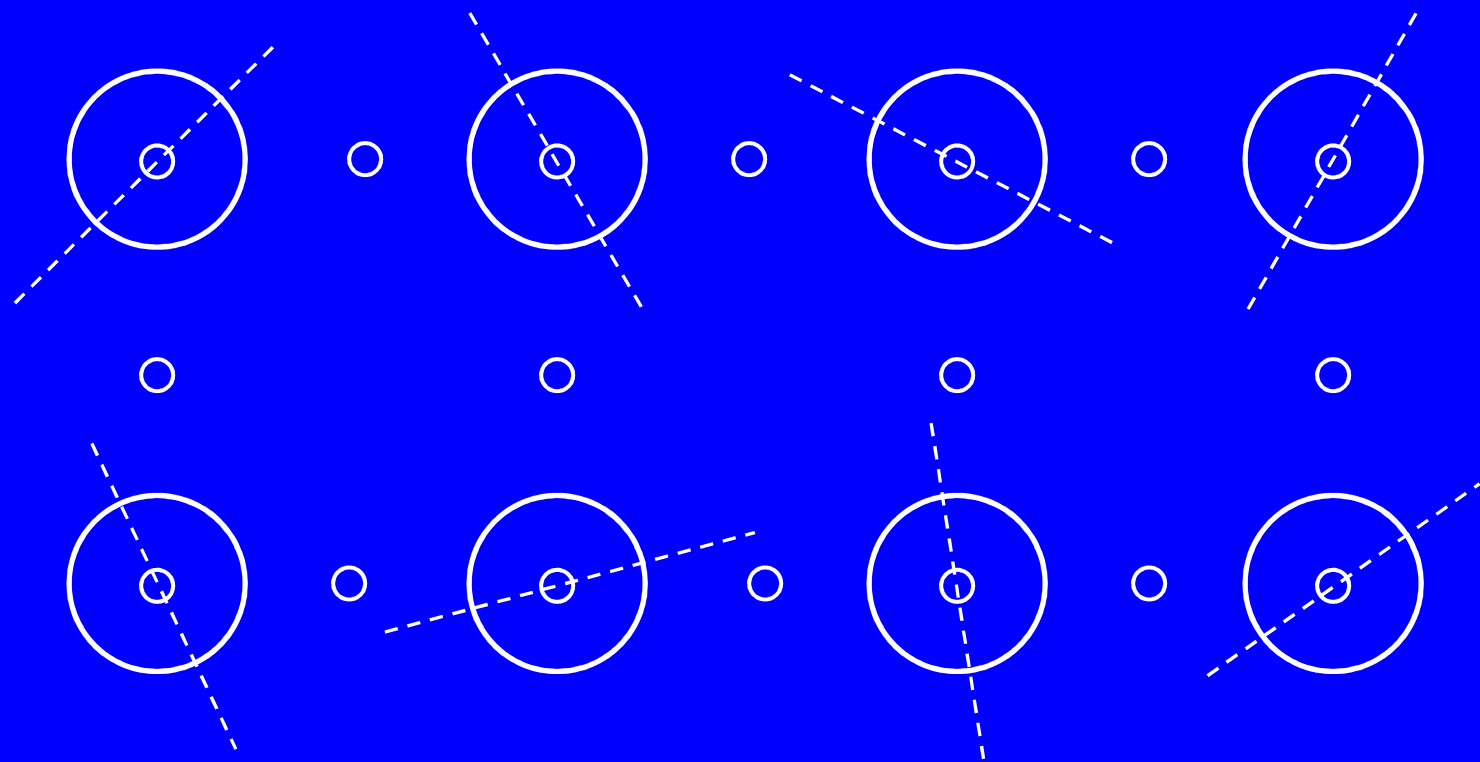
Study Sites (six in each combination)

- Blowdown-Salvage-Fire
- Blowdown-Fire
- ▲ Fire
- ✚ Blowdown
- ◆ Control

All Jack Pine Dominated

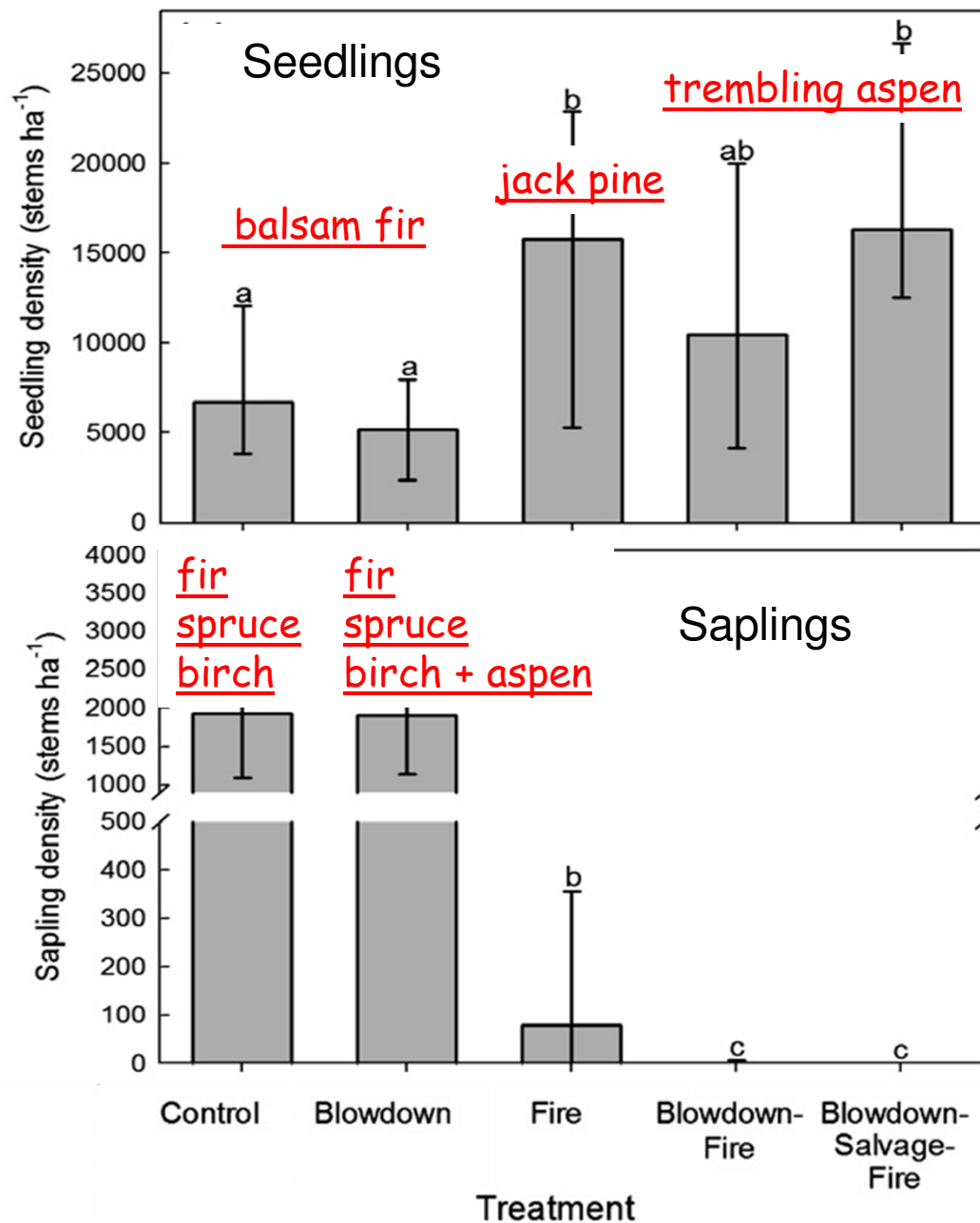
Plot Arrangement (at each site)

200 m² & 10 m² plots

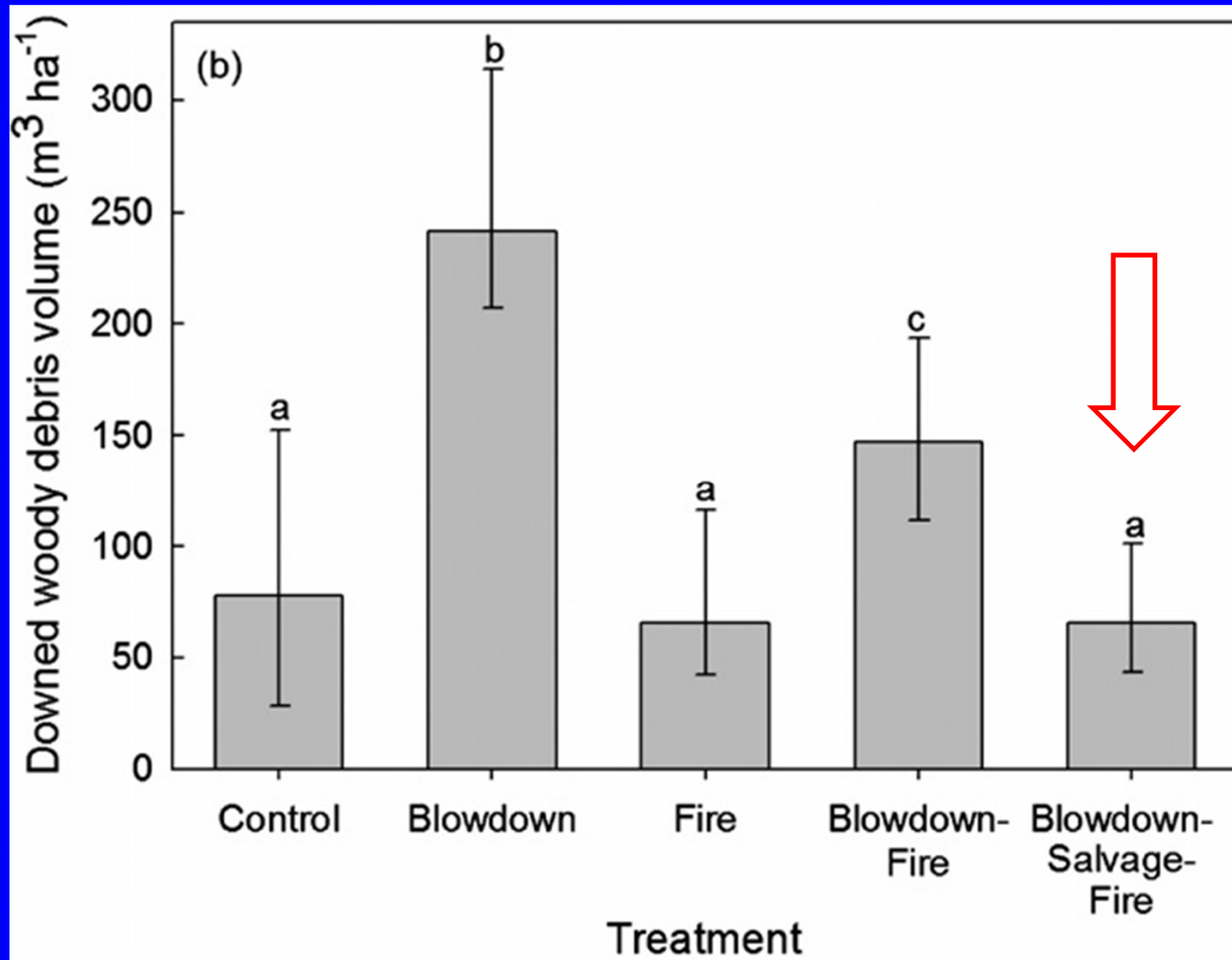




Results: Tree regeneration



Results: Coarse woody debris (= coarse fuels)



Potential tradeoff regarding fuels:

Legacy retention

versus

Fuel reduction

Retain legacies of disturbance?



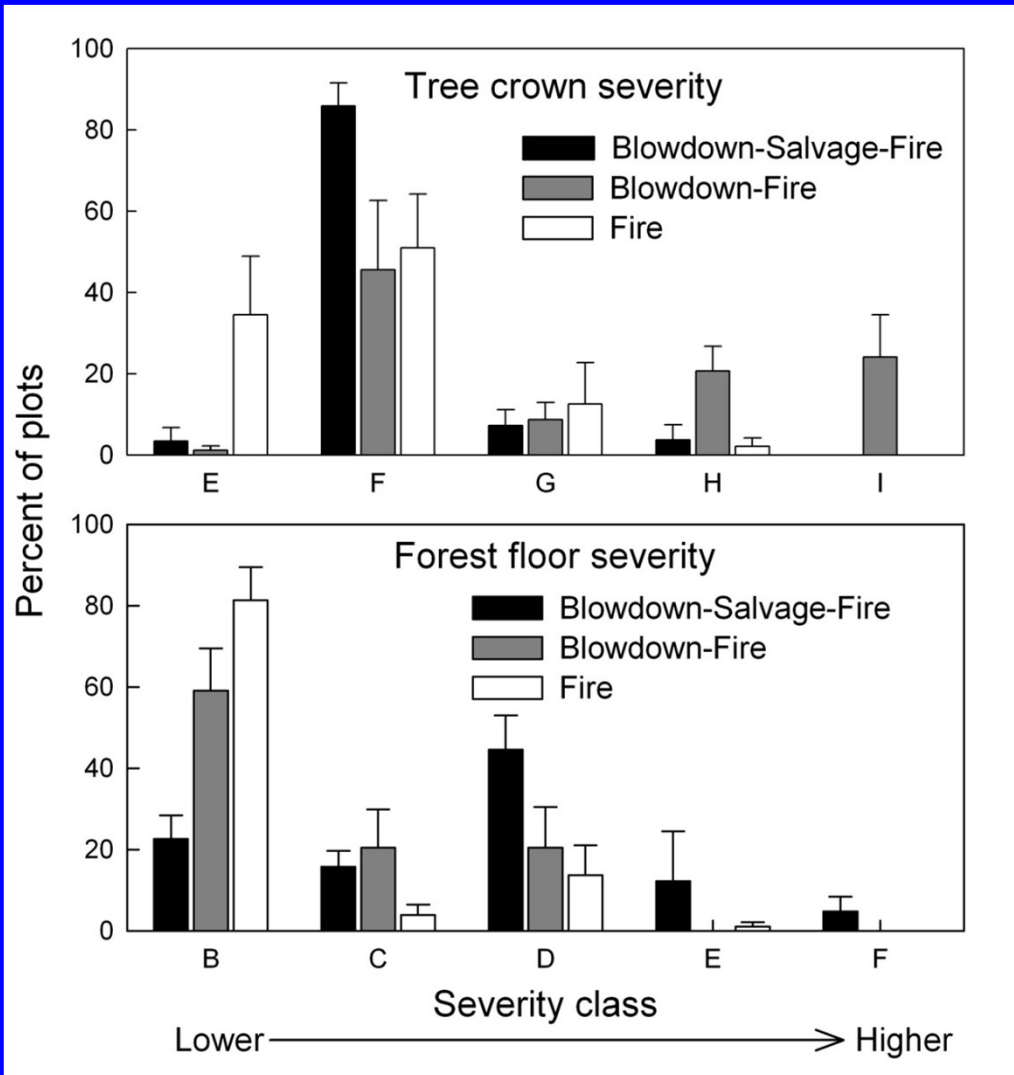
Reduce fuel loads?



Publications of interest (??)

- Singular and interactive effects of blowdown, salvage logging, and wildfire in sub-boreal pine systems. (2011) *For. Ecol. Manage.* 262: 2070-2078. Tony D'Amato and others.
- The efficacy of salvage logging in reducing subsequent fire severity in conifer-dominated forests of Minnesota, USA. (2011) *Ecol. Appl.* 21: 1895-1901. Shawn Fraver and others.
- Effects of multiple interacting disturbances and salvage logging on forest carbon stocks. (2012) *For. Ecol. Manage.* 267: 209-214. John Bradford and others.

Fire Severity

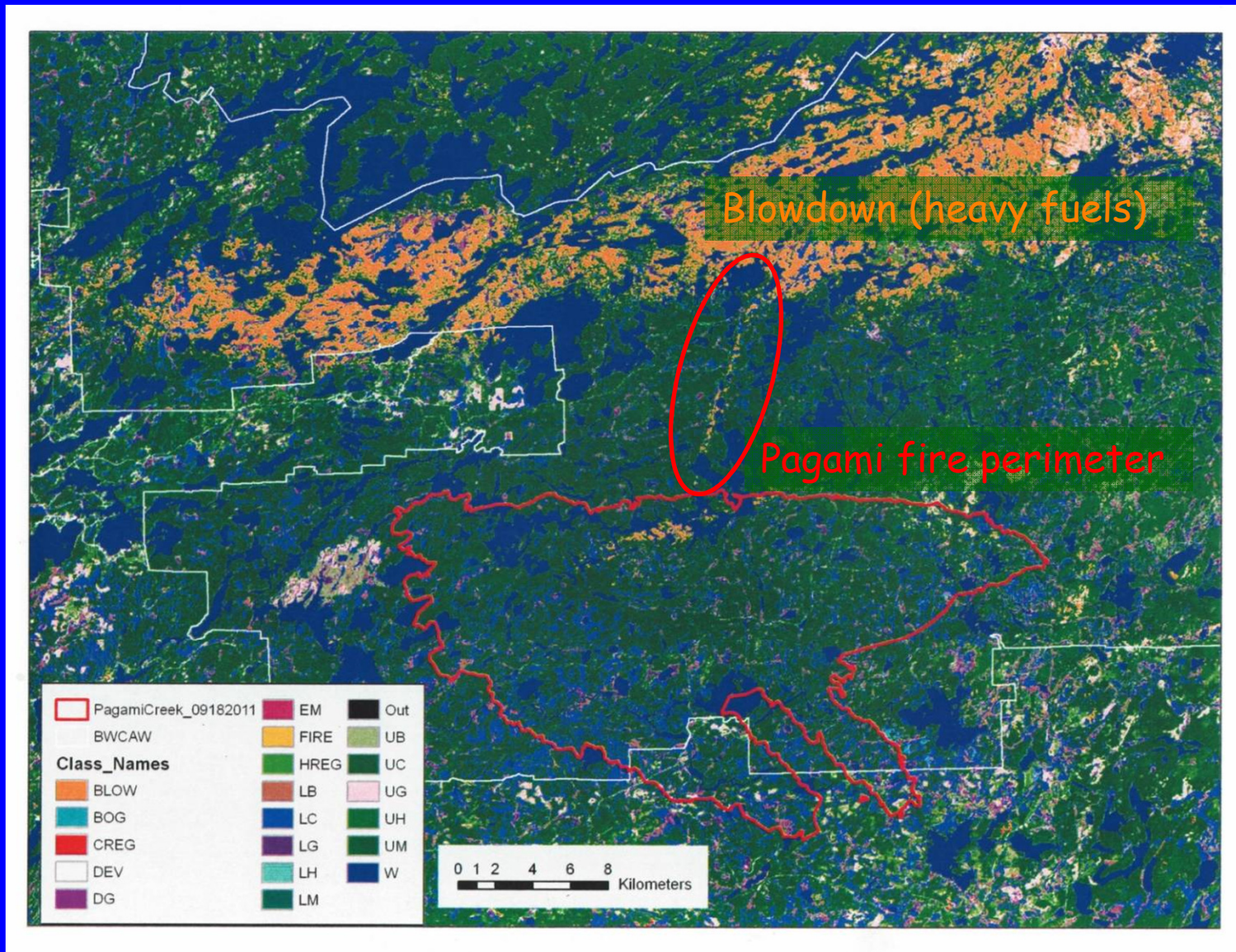


$$F = BSF < BF$$

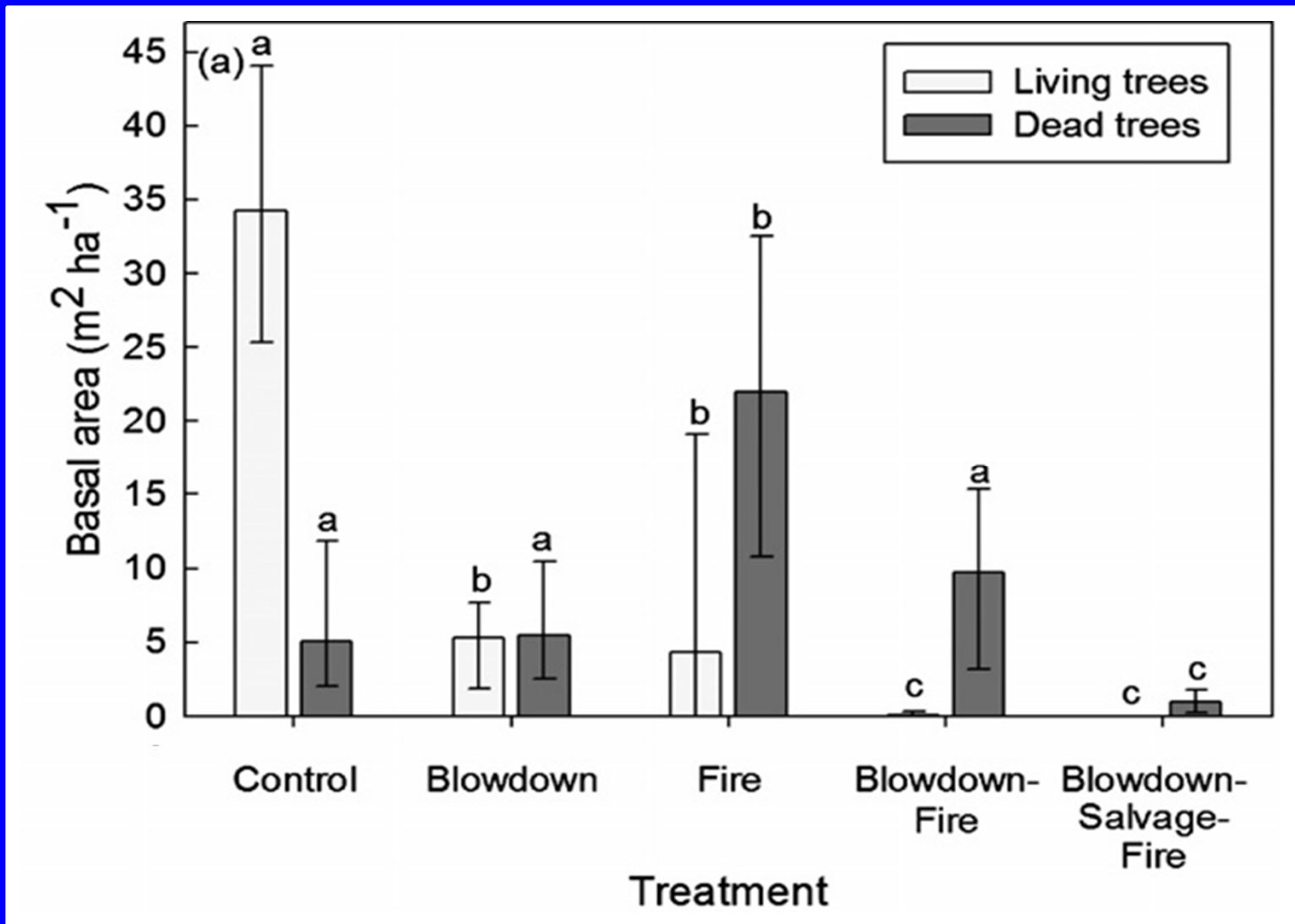
severity →

$$F = BF < BSF$$

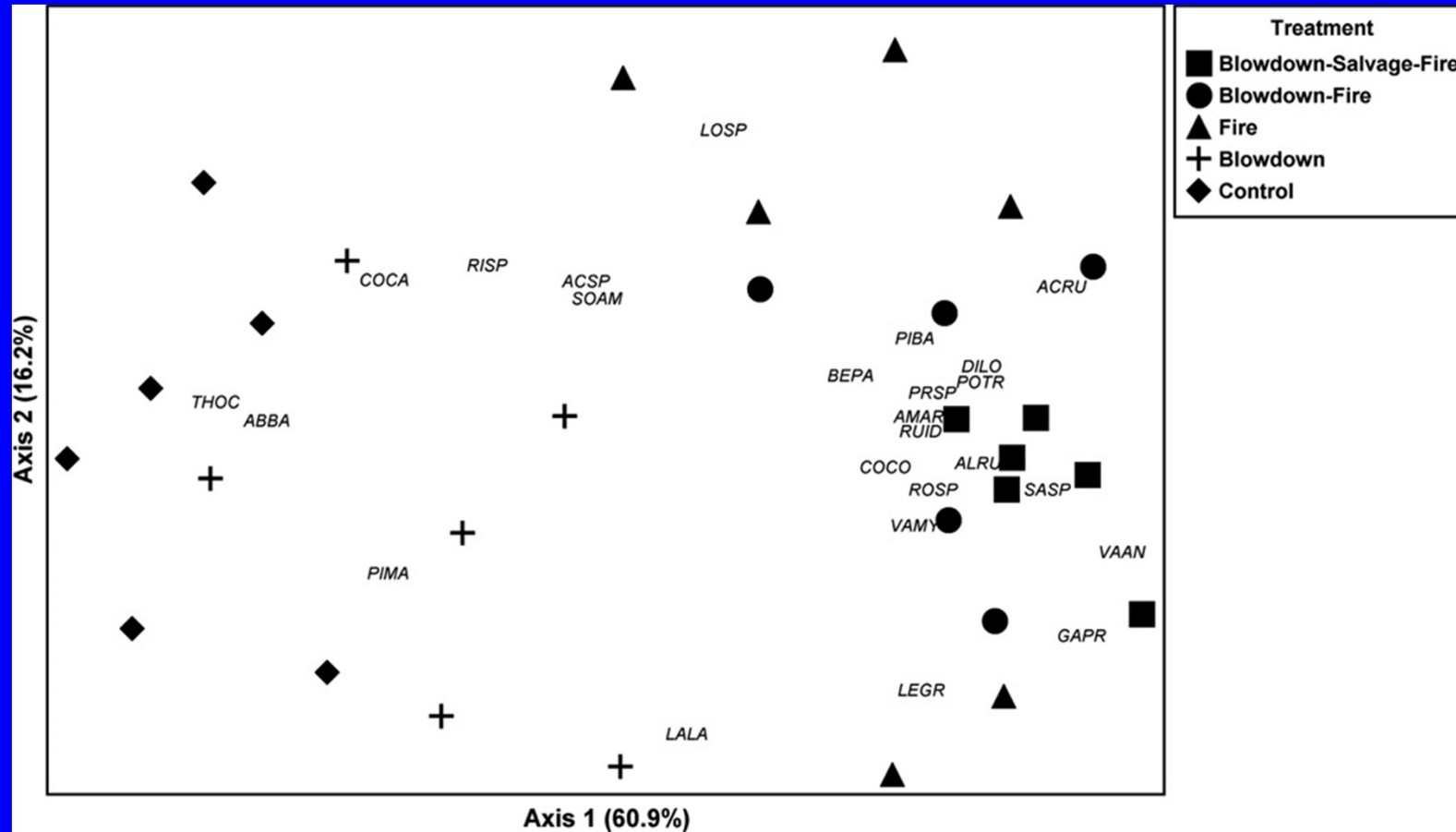
Pagami Creek Fire - fuels corridor



Results: Tree Basal Areas



Results: Ordination



Results: Tree regeneration by species

